

## CLAIMS

What is claimed is:

1. A method of forming a gas tank filler neck comprising:  
configuring at least a portion of a one-piece seamless tubular member  
such that the seamless configuration induces a sufficient swirl to create a hollow  
passage for venting vapors from the gas tank during fuel filling.

2. A filler neck for receiving a fuel supply nozzle for a motor vehicle fuel tank comprising:

a one-piece seamless funnel member having a tubular body defining a relatively large inlet opening adapted to receive fuel from the nozzle and a relatively small necked down outlet opening in communication with the fuel tank, the positioning of the relatively large inlet opening relative the relatively small necked down outlet opening inducing a swirl to the fuel being supplied to the motor vehicle fuel tank.

3. The filler neck of claim 2 wherein the inlet opening is rolled over to create a surface to seal to the gas cap.

4. The filler neck of claim 2 wherein the small necked down outlet opening is barbed to adapt the opening for attachment to a plastic tube insert.

5. The filler neck of claim 2 wherein the small necked down outlet opening is formed into a hose bead to adapt the opening for attachment to a hose.

6. The filler neck of claim 2 further comprising a vent hole adapted for connection to a fuel tank vent tube.

7. The filler neck of claim 2, further comprising a receptor for positioning the fuel supply nozzle and wherein the funnel member is drawn and provided with an attachment portion adjacent to the inlet opening for attaching the receptor to the funnel member.

8. The filler neck of claim 2 further comprising an elongated tubular member connecting the relatively small necked down outlet opening and the fuel tank.

9. The filler neck of claim 8 wherein the funnel member is joined to the elongated member inlet by a braise.

10. The filler neck of claim 8 wherein the funnel member is joined to the tubular member inlet by adhesive.

11. The filler neck of claim 8 wherein the funnel member is joined to the tubular member inlet by a resistance weld.

12. The filler neck of claim 8 wherein the funnel member is joined to the tubular member inlet by a weld.

13. The filler neck of claim 2 including an exterior surface on the filler neck and wherein substantially all of the exterior surface of the filler neck is provided with an anti-corrosive coating.

14. The filler neck of claim 2 further comprising a relatively large diameter section forming the inlet opening and a spaced-apart relatively smaller diameter tubular section forming the outlet opening wherein the large diameter and small diameter tubular sections are axially offset and connected to one another by a tapered section which gradually blends from the large diameter section to the small diameter section.

15. The filler neck of claim 14 wherein the tapered section intersects the large diameter section at an elliptically-shaped junction which lies in a plane inclined 60-85 degrees from the axes of the tubular sections.

16. The filler neck of claim 2 wherein the funnel inlet opening has a diameter  $D_1$  and the outlet opening has a diameter  $D_2$  where  $D_1$  is at least one and a half times  $D_2$ .

17. The filler neck of claim 2 wherein the one-piece seamless funnel member is made of metal.

18. The filler neck of claim 17 wherein the metal is selected from the group comprising: cold rolled steel, stainless steel, zinc galvanized, terne plate, tin plate, nickel plate, galvaneal, and aluminum.

19. The filler neck of claim 2 wherein the one-piece seamless funnel member is made of plastic.

20. A method of forming a filler neck for a motor vehicle fuel tank comprising:

drawing a seamless funnel member having an elongated tubular body;

forming a relatively large inlet at one end of the seamless funnel member, the inlet having a first axis; and

forming a relatively small outlet at the opposite end of the seamless funnel member, the inlet having a second axis axially offset from said first axis.

21. The method of claim 20 further comprising:

cutting a length of butt-seam tubing to form a tubular member of desired length; and

telescopically joining an end of the tubular member with respect to the outlet of the funnel member to securely join the funnel and tubular members together.

22. The method of claim 21 further comprising:

attaching a nozzle receptor to the funnel member adjacent the funnel member inlet.